

Report Date:
04-Jan-18 15:32

Laboratory Report SC42593

Gulf Oil L.P.
281 Eastern Avenue
Chelsea, MA 02150
Attn: Andrew P. Adams

Project: Gulf Terminal - Chelsea, MA
Project #: Gulf Chelsea

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393



Authorized by:
Rebecca Merz
Quality Services Manager



Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

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Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC42593
Project: Gulf Terminal - Chelsea, MA
Project Number: Gulf Chelsea

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SC42593-01	Outfall 003	Surface Water	18-Dec-17 15:25	19-Dec-17 16:00
SC42593-02	TB-1 Trip Blank	Aqueous	18-Dec-17 00:00	19-Dec-17 16:00

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 2.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260C**Calibration:**

1712018

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

1721127-BLK1

1721127-BS1

1721127-BSD1

Outfall 003

S710641-ICV1

S711032-CCV1

TB-1 Trip Blank

Sample Acceptance Check Form

Client: Gulf Oil L.P.
Project: Gulf Terminal - Chelsea, MA / Gulf Chelsea
Work Order: SC42593
Sample(s) received on: 12/19/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were samples received at a temperature of $\leq 6^{\circ}\text{C}$?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Summary of Hits

Lab ID: SC42593-01

Client ID: Outfall 003

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Total Suspended Solids	14.4		0.5	mg/l	SM2540D (11)

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification**Outfall 003**

SC42593-01

Client Project #

Gulf Chelsea

Matrix

Surface Water

Collection Date/Time

18-Dec-17 15:25

Received

19-Dec-17

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Volatile Organic CompoundsVolatile Organic Aromatics by SW846 8260Prepared by method SW846 5030 Water MS

71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	21-Dec-17	22-Dec-17	GMA	1721127	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	98			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	98			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	95			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	99			70-130 %			"	"	"	"	"	

Semivolatile Organic Compounds by GCMSSVOCs by SIMPrepared by method SW846 3510C

50-32-8	Benzo (a) pyrene	< 0.047		µg/l	0.047	0.019	1	SW846 8270D SIM	21-Dec-17	29-Dec-17	MSL	1721118	
91-20-3	Naphthalene	< 0.047		µg/l	0.047	0.020	1	"	"	"	"	"	

Surrogate recoveries:

205440-82-0	Benzo (e) pyrene-d12	67			30-130 %			"	"	"	"	"	
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General Chemistry Parameters

pH	7.16	pH	pH Units				1	ASTM D 1293-99B	20-Dec-17 17:54	28-Dec-17 11:23	TN	1721093	X
Total Suspended Solids	14.4		mg/l	0.5	0.2		1	SM2540D (11)	21-Dec-17	22-Dec-17	CMB	1721141	X

Subcontracted AnalysesPrepared by method 414608*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*

Oil and Grease by EPA 1664A	< 1.4		mg/l	1.4	1.4		1	E1664A	18-Dec-17 15:25	28-Dec-17 15:38	M-CT007	414608A	
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Sample Identification**TB-1 Trip Blank**

SC42593-02

Client Project #

Gulf Chelsea

Matrix

Aqueous

Collection Date/Time

18-Dec-17 00:00

Received

19-Dec-17

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Volatile Organic CompoundsVolatile Organic Aromatics by SW846 8260Prepared by method SW846 5030 Water MS

71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	21-Dec-17	22-Dec-17	GMA	1721127	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	98			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	98			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	96			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	100			70-130 %			"	"	"	"	"	

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Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>SW846 8260C</u>										
Batch 1721127 - SW846 5030 Water MS										
<u>Blank (1721127-BLK1)</u>					<u>Prepared & Analyzed: 21-Dec-17</u>					
Benzene	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>49.2</i>		<i>µg/l</i>		<i>50.0</i>		<i>98</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>48.9</i>		<i>µg/l</i>		<i>50.0</i>		<i>98</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>48.0</i>		<i>µg/l</i>		<i>50.0</i>		<i>96</i>	<i>70-130</i>		
<i>Surrogate: Dibromofluoromethane</i>	<i>49.8</i>		<i>µg/l</i>		<i>50.0</i>		<i>100</i>	<i>70-130</i>		
<u>LCS (1721127-BS1)</u>					<u>Prepared & Analyzed: 21-Dec-17</u>					
Benzene	19.7		µg/l		20.0		98	70-130		
Naphthalene	22.4		µg/l		20.0		112	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.0</i>		<i>µg/l</i>		<i>50.0</i>		<i>102</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>49.1</i>		<i>µg/l</i>		<i>50.0</i>		<i>98</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>46.4</i>		<i>µg/l</i>		<i>50.0</i>		<i>93</i>	<i>70-130</i>		
<i>Surrogate: Dibromofluoromethane</i>	<i>49.8</i>		<i>µg/l</i>		<i>50.0</i>		<i>100</i>	<i>70-130</i>		
<u>LCS Dup (1721127-BSD1)</u>					<u>Prepared & Analyzed: 21-Dec-17</u>					
Benzene	19.6		µg/l		20.0		98	70-130	0.5	20
Naphthalene	22.7		µg/l		20.0		114	70-130	1	20
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>51.0</i>		<i>µg/l</i>		<i>50.0</i>		<i>102</i>	<i>70-130</i>		
<i>Surrogate: Toluene-d8</i>	<i>48.9</i>		<i>µg/l</i>		<i>50.0</i>		<i>98</i>	<i>70-130</i>		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>46.3</i>		<i>µg/l</i>		<i>50.0</i>		<i>93</i>	<i>70-130</i>		
<i>Surrogate: Dibromofluoromethane</i>	<i>49.4</i>		<i>µg/l</i>		<i>50.0</i>		<i>99</i>	<i>70-130</i>		

Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>SW846 8270D SIM</u>										
Batch 1721118 - SW846 3510C										
<u>Blank (1721118-BLK2)</u>					<u>Prepared: 21-Dec-17 Analyzed: 27-Dec-17</u>					
Benzo (a) pyrene	< 0.051		µg/l	0.051						
Naphthalene	< 0.051		µg/l	0.051						
Surrogate: Benzo (e) pyrene-d12	0.663		µg/l		1.02		65	30-130		
<u>LCS (1721118-BS2)</u>					<u>Prepared: 21-Dec-17 Analyzed: 27-Dec-17</u>					
Benzo (a) pyrene	0.694		µg/l	0.051	1.01		69	40-140		
Naphthalene	0.622		µg/l	0.051	1.01		62	40-140		
Surrogate: Benzo (e) pyrene-d12	0.576		µg/l		1.01		57	30-130		
<u>LCS Dup (1721118-BSD2)</u>					<u>Prepared: 21-Dec-17 Analyzed: 27-Dec-17</u>					
Benzo (a) pyrene	0.718		µg/l	0.050	1.00		72	40-140	3	20
Naphthalene	0.513		µg/l	0.050	1.00		51	40-140	19	20
Surrogate: Benzo (e) pyrene-d12	0.570		µg/l		1.00		57	30-130		
<u>Duplicate (1721118-DUP1)</u>			<u>Source: SC42593-01</u>		<u>Prepared: 21-Dec-17 Analyzed: 29-Dec-17</u>					
Benzo (a) pyrene	< 0.048		µg/l	0.048		BRL				20
Naphthalene	< 0.048		µg/l	0.048		BRL				20
Surrogate: Benzo (e) pyrene-d12	0.663		µg/l		0.962		69	30-130		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>ASTM D 1293-99B</u>										
Batch 1721093 - General Preparation										
<u>Reference (1721093-SRM1)</u>					<u>Prepared: 20-Dec-17 Analyzed: 28-Dec-17</u>					
pH	6.05		pH Units		6.00		101	97.5-102.5		
<u>Reference (1721093-SRM2)</u>					<u>Prepared: 20-Dec-17 Analyzed: 28-Dec-17</u>					
pH	6.03		pH Units		6.00		100	97.5-102.5		
<u>SM2540D (11)</u>										
Batch 1721141 - General Preparation										
<u>Blank (1721141-BLK1)</u>					<u>Prepared: 21-Dec-17 Analyzed: 22-Dec-17</u>					
Total Suspended Solids	< 0.5		mg/l	0.5						
<u>LCS (1721141-BS1)</u>					<u>Prepared: 21-Dec-17 Analyzed: 22-Dec-17</u>					
Total Suspended Solids	92.0		mg/l	10.0	100		92	90-110		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>E1664A</u>										
Batch 414608A - 414608										
<u>BLK (BZ62924-BLK)</u>					<u>Prepared & Analyzed: 28-Dec-17</u>					
Oil and Grease by EPA 1664A	< 1.4		mg/l	1.4	40			-		
<u>LCS (BZ62924-LCS)</u>					<u>Prepared: Analyzed: 28-Dec-17</u>					
Oil and Grease by EPA 1664A	39.20		mg/l	1.4	40		98	85-115		20
<u>LCSD (BZ62924-LCSD)</u>					<u>Prepared: Analyzed: 28-Dec-17</u>					
Oil and Grease by EPA 1664A	39.10		%	1.4	40		98	85-115	0.0	20

Notes and Definitions

dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
OG	The required Matrix Spike and Matrix Spike Duplicate (MS/MSD) for Oil & Grease method 1664B can only be analyzed when the client has submitted sufficient sample volume. An extra liter per MS/MSD is required to fulfill the method QC criteria. Please refer to Chain of Custody and QC Summary (MS/MSD) of the Laboratory Report to verify ample sample volume was submitted to fulfill the requirement.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.



CHAIN OF CUSTODY RECORD

Page 1 of 1

☐ Standard TAT - 7 to 10 business days

☐ Rush TAT - Date Needed:

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Andrew Adams

Invoice To: Christopher All

Project No: Gulf Chelsea

Gulf Oil LP
281 Eastern Ave

cult Oil LR
80 William St - Suite 400

Site Name: Ault Chelsen Terner

Chelsea MA. 02150

Wellesley, MA 02481-3705

Location: 281 Eastern Ave State: MA

Telephone #: 617 884-5980
Project Mgr: A. Adams

P.O. No.: _____

Quote #: _____

F=Field Filtered 1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
7=CH₃OH 8=NaHSO₄ 9=Deionized Water 10=H₃PO₄ 11= 12=

List Preservative Code below:

QA/QC Reporting Notes:

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water

Containers

Analysis

O=Oil **SO=Soil** **SL=Sludge** **A=Indoor/Ambient Air** **SG=Soil Gas**

X1= _____

X2= _____

X3= _____

G=Grab
C=Composite

Type
Matrix

of VOA Vials
of Amber Glass
of Clear Glass
of Plastic

PAHs
VOCs (Benz, naphth)
pH
TSS
Oil

Check if chlorinated

☐ Standard ☐ No QC
☐ DQA* ☐ ASP A* ☐ ASP B*
☐ ASP A* ☐ ND Reduced* ☐ ND Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
 State-specific reporting standards: _____

Relinquished by:

Received by:

Date: 1/17
Dine: 1/17

Temp °C

☐ EDD format:

☐ E-mail to: Jennifer Atkins, Cam
Also send report to ✓

Condition upon receipt:	Custody Seals:	<input type="checkbox"/> Present	<input type="checkbox"/> Intact	<input type="checkbox"/> Broken
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☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Sample shipping address: 11 Almgren Drive • Agawam, MA 01001 • 413-789-9018 • www.EurofinsUS.com/Spectrum

Rev. Nov 2016

Special Handling:

5

Batch Summary

1721093

General Chemistry Parameters

1721093-SRM1
1721093-SRM2
SC42593-01 (Outfall 003)

1721118

Semivolatile Organic Compounds by GCMS

1721118-BLK2
1721118-BS2
1721118-BSD2
1721118-DUP1
SC42593-01 (Outfall 003)

1721127

Volatile Organic Compounds

1721127-BLK1
1721127-BS1
1721127-BSD1
SC42593-01 (Outfall 003)
SC42593-02 (TB-1 Trip Blank)

1721141

General Chemistry Parameters

1721141-BLK1
1721141-BS1
SC42593-01 (Outfall 003)

414608A

Subcontracted Analyses

BZ62924-BLK
BZ62924-LCS
BZ62924-LCSD
SC42593-01 (Outfall 003)

S710641

Volatile Organic Compounds

S710641-CAL1
S710641-CAL2
S710641-CAL3
S710641-CAL4
S710641-CAL5
S710641-CAL6
S710641-CAL7
S710641-CAL8
S710641-CAL9
S710641-ICV1
S710641-LCV1
S710641-LCV2
S710641-TUN1

S711032

Volatile Organic Compounds

S711032-CCV1
S711032-TUN1

S711062

Semivolatile Organic Compounds by GCMS

S711062-CAL1
S711062-CAL2
S711062-CAL3
S711062-CAL4
S711062-CAL5
S711062-CAL6
S711062-CAL7
S711062-CAL8
S711062-CAL9
S711062-ICV1
S711062-LCV1
S711062-LCV2
S711062-TUN1

S711181

Semivolatile Organic Compounds by GCMS

S711181-CCV1
S711181-TUN1

S815632

Semivolatile Organic Compounds by GCMS

S815632-CCV1
S815632-TUN1